REQUEST FOR QUALIFICATIONS
State of Colorado
Department Of Natural Resources
Notice Number: PDA-307V

Project No: **PDA-307V**
Project Title: **Colorado River Return Project**
Estimated Construction Cost: **0.00**
Notice Status: **Open for Submittals, Revised**
Notice Revisions: **1**
First Published: **11/12/2002**
Last Published: **11/18/2002**

Notice Revisions

11/18/2002 01:08:44 PM
The bid number was corrected on the notice.

Project Description

The Colorado River Return Project study will address all physical, logistical, environmental, financial, legal and institutional aspects of the construction of a large-scale water delivery system from the Colorado River near the Utah border to be utilized in the South Platte, Arkansas and Colorado river basins.

The RFI and Scope of Work are attached: PD307I~1.pdf PD307S~1.pdf

Scope of Services

RFQ for Services of: Engineers
Colorado River Return Project will conduct a reconnaissance-level investigation in sufficient detail to: define that a need exists or will exist for the water made available from the project, establish technical requirements and required components of the project, i.e. size, type and location of project facilities, determine project environmental and water quality constraints, distinguish the major differences between configurations and the advantages and disadvantages of each, provide a preliminary indication of feasibility for each configuration, and identify project sponsors and funding alternatives.

Minimum Requirements

Minimum Requirements for this project include a license to practice Engineering in Colorado, and completion of projects of similar scope and complexity.

Qualifications Due

Date & Time: **12/19/2002 05:00 PM**
Address: **Attention: Maggie Van Cleef, Department of Natural Resources Purchasing**

Office, 1313 Sherman Street #423, Denver, CO 80203

Comments:

Firms meeting the minimum requirements may obtain the RFQ documents by contacting

the Colorado BIDS website, at www.gssa.state.co.us, pick State Purchasing Office, then Colorado Design and Construction Notices. The RFQs and Scopes of Work can be downloaded from that website.

Pre-Submittal Meeting

An informational Pre-Submittal Meeting will be held **12/05/2002 10:00 AM** at **1313 Sherman Street, Room # 318, Denver, CO 80203**

Written questions will be accepted until close of business on December 9, 2002 by Maggie Van Cleef via mail, fax, hand-delivery, or via email as an attachment readable in Word 97. See contact numbers and addresses below.

Point of Contact

Name: **Maggie Van Cleef**
Agency: **Department Of Natural Resources**
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Comments:

This Notice will also be advertised in the following publications:
Denver Post

On requested publication date(s): November 14 and 21, 2002

November 7, 2002

SCOPE OF WORK FOR A STUDY OF THE COLORADO RIVER RETURN PROJECT (CRRP)

Study Objectives

The study will focus on the following specific areas:

Reason for the Study
Explain the need for the CRRP relative to the current drought, growth along the front range of Colorado, availability of water on the west slope, and the importance of utilizing the State's compact entitlements.

Setting
Characterize the current physical, institutional, legal, political and social setting for the CRRP development in Colorado and the challenges that are presented by each factor.

Configurations
Identify, develop and evaluate three or more project configurations, consisting of structural and non-structural measures, that appear to be technically, financially and economically feasible as well as politically and environmentally acceptable in transporting Colorado River water from the Colorado/Utah border to the Continental Divide of Colorado for division and use on the west and east slopes of Colorado at three levels of water diversion and demand scenarios:

250,000 acre-feet/year
500,000 acre-feet/year
Full Compact Development (to be provided by CWCB)

These three scenarios encompass a range of water supplies available during an average year from the Colorado River compact entitlements.

Alternatives to the CRRP
For cost and water yield comparison purposes, describe alternatives to the CRRP that could result in (1) Colorado's use of its Colorado River compact entitlement and (2) Increased water supplies to the east slope, including but not limited to construction of other water development projects, agricultural transfers to municipal and industrial use, water conservation, growth limitations, and other demand management practices. With the full compact development scenario, consideration shall be given to other basins contributing to the Colorado river at points west of the Colorado/Utah state line for an equitable carve out of water for development in the Colorado mainstem.

Strategy
Formulate project development strategies for the implementation of the CRRP.

Study Scope

The CRRP is proposed as a reconnaissance-level investigation that will be conducted in sufficient detail to: define that a need exists or will exist for the water made available from the project,

establish technical requirements and required components of the project, i.e., size, type and location of project facilities, determine project environmental constraints and water quality constaints, distinguish the major differences between configurations and the advantages and disadvantages of those configurations, provide a preliminary indication of feasibility for each configuration, and identify project sponsors and funding alternatives. The study scope will be comprehensive in that it will, within study budget limitations, address all physical, logistical, environmental, financial, legal, and institutional aspects of the construction of a large scale water delivery system from the Colorado River near the Utah border to be utilized in the South Platte, Arkansas and Colorado river basins.

The major study tasks are:

Initial Work Tasks

Task 1 – Data Collection and Review

Task 2 – Compilation of Water Demand Studies on the Arkansas, South Platte and Colorado River Mainstem

Task 3 – Final Scoping Activities

Colorado River Main-Stem Background Information

Task 4 – Overview of the Physical Environment

Task 5 – Institutional Setting

Alternatives and Strategies

Task 6 – Overview of Water Supply Alternatives to the CRRP

Task 7 – Formulation of Project Configurations

Task 8 – Evaluation of Project Configurations

Task 9 – Documentation and Justification of Selected Configuration(s)

Task 10 – Project Development Strategies

Documentation

Task 11 –Study Documentation

Study Process

Study Tasks 1, 2 and 3 are intended to collect and review existing data for the study and to finalize the scope of work.

The overview of the physical environment and institutional settings are described in Tasks 4 and 5 below under Detailed Work Tasks. The level of detail in Tasks 4 and 5 will be fairly general but adequate for use in later study tasks.

Task 6 will briefly analyze (1) The alternatives to the construction of the CRRP to allow Colorado to develop its Colorado River compact entitlements and (2) alternatives to provide increased water supplies to the east slope including, but not limited to construction of other water development projects, agricultural transfers to municipal and industrial uses, water conservation, growth limitations, and other demand management practices.

It is expected that the major portion of the study budget will be devoted to the work required in Tasks 7 through 10.

Project facility configurations will be formulated and evaluated in Tasks 7, 8 and 9 to address the issues and problems identified in the design, permitting, construction and operation of the project. It is expected that a large number of structural and non-structural plan elements will be used in various configurations and evaluated in a multi-step screening process leading to the selection of one or more preferred project configurations.

Strategies for implementation of the preferred project configurations will be developed in Task 10. The strategies will include measures that could be taken on a local, regional or state-wide basis such as new or revised institutional arrangements, statutory revisions, policy changes on the part of various agencies or organizations and new or revised funding methods.

Documentation of the study process is described in Task 11.

Existing studies, reports, computer programs and analyses as well as information made available from studies currently in progress will be used to the maximum extent possible. Consultants should review and utilize the *Guidelines for Financial Assistance through the Colorado Water Conservation Board Construction Fund* as a reference source for the project planning activities outlined below.

The study is expected to result in: a number of selected project configurations that appear to be feasible at a reconnaissance level of analysis, a set of strategies for project implementation, or recommendations that the project is not feasible and should be eliminated from all further consideration.

Detailed Work Tasks

The following is a suggested outline of tasks to accomplish the study objectives described above. It is expected that consultants submitting proposals for the CRRP will provide a more detailed Scope of Work and may suggest revisions to this Scope of Work so long as the study objectives can still be met.

Task 1 – Data Collection and Review

Conduct an extensive data collection effort to obtain and document information that is currently available and would be of use in the conduct of the study. Data collection will include studies currently in progress to the extent that such information might be made available for and be useful to this study.

1a. Review studies, reports or other available data for use in the study. Sources of information include but are not limited to: the Water Resources Information Center of the CWCB, the library of the Colorado Water Resources & Power Development Authority, the library of Colorado State University, U.S. Bureau of Reclamation, Colorado River Water Conservation District, City and County of Denver, Colorado Springs, Northern Colorado Water Conservancy District, etc.

1b. Prepare a bibliography of all data collected.

Task 2 – Compilation of Water Demand Studies on the Arkansas, South Platte and Colorado River Mainstem

Compile the most current water demand studies for the Arkansas, South Platte and Colorado River Mainstem basins. This information should include growth projections, water use analysis, tabulation of existing infrastructure, and drought preparedness.

2a. Review water demand studies recently completed or in progress conducted by all the major water providers in the three major basins of the Arkansas, South Platte and Colorado River Mainstem.

2b. Prepare a bibliography of all data collected.

Task 3 – Final Scoping Activities

The Technical Committee, CWCB staff and the study consultants will review the Scope of Work and make any needed revisions following meetings with the Technical Committee before beginning work on Tasks 4 through 11. Revisions are not expected to result in changes in the overall level of effort or in the study budget.

3a. Review the Scope of Work and make needed revisions.

Task 4 – Overview of the Physical Environment

Prepare an overview of the Colorado Main-Stem physical environment by way of background information for use in later work tasks.

4a. Prepare an overview of the Colorado Main-Stem physical environment to include the following:

Climate	Drought characteristics	Water quality	Recreational resources
Topography	Surface water resources*	Land use	Existing Infrastructure

Geology Groundwater Resources Vegetation Energy/mineral resources

* Includes current and projected uses of available water and physical and legal availability of water.

4b. Prepare an overview of the South Platte and Arkansas basins physical environment to include existing infrastructure and necessary infrastructure to deliver water from CRRP to those river basins. For the purposes of this study, the consultant should assume it will be the responsibility of project users to deliver water from the project terminus to their respective delivery systems. The consultant should review and suggest the location or locations of the project terminus.

Task 5 – Institutional Setting

Describe the institutional setting for water use and development in Colorado such that the information can be utilized in formulating and evaluating project configurations in Tasks 7 and 8 and in determining project selection and development strategies in Tasks 9 and 10.

5a. Describe the existing institutional setting to include the following:

State, regional and federal agencies involved in Colorado water supply and water quality issues,

Brief overview of applicable Colorado water law,

Federal statutes, policies and regulations affecting water supply,

Brief overview of interstate compacts, U.S. Supreme Court decrees and interstate agreements affecting Colorado River water use,

Water quality standards, i.e. Salinity Control Act, etc.,

Existing water project funding programs,

Brief overview of the Colorado economy,

Endangered Species Act constraints,

Decision support systems and geographic information systems, and

Statewide issues and concerns with integration of this project water with existing supplies.

Task 6 – Overview of Water Supply Alternatives to the CRRP

For cost and water yield comparison purposes, identify and discuss the alternatives to a project the size of the CRRP.

6a. List the alternatives to a project the size of the CRRP for water development in the State of Colorado. That list should include but not be limited to the construction of other water development projects, transfer of agricultural water rights to municipal and industrial users, water conservation, demand management, conjunctive use, and local water project development.

6b. Provide a narrative of the advantages and disadvantages of each alternative giving examples of each type of project.

Task 7 – Formulation of Project Configurations

Formulate a number of project configurations to address the three water supply and demand scenarios. A methodology or rationale for the formulation of configurations will be developed to include near-term and long-term scenarios.

Configurations will include both structural and non-structural elements that could be used individually or in combination to facilitate this project.

Non-structural elements will include but are not limited to: water rights transfers or exchanges, substitutions, trades, water leasing, revised operations of existing systems and new or revised institutional arrangements that have the potential to better utilize existing infrastructure, reduce demands and/or increase supplies to facilitate this project.

Structural elements will include but are not limited to: systems for use of aquifers, new water storage reservoirs, use and/or enlargements of existing water storage reservoirs and water delivery systems, diversion structures, pump stations, pipelines and tunnels. Hydropower development will be considered where it appears to have potential to repay some portion of the project construction and operation costs.

7a. Select structural and non-structural plan elements for suitability in formulating configurations.

7b. Develop a methodology or rationale for the formulation of configurations.

7c. Develop alternatives using appropriate combinations of structural and non-structural elements.

Task 8 – Evaluation of Project Configurations

Configurations will be evaluated in a multi-step screening process. Existing data, computer models and decision support systems should be utilized to the maximum extent possible.

The first step in the screening process will be the identification of "fatal flaws" in any particular plan element so as to eliminate that item from further consideration. Subsequent screening steps will consist of more detailed analyses. Configurations may be reformulated and reevaluated in an iterative evaluation process.

An evaluation procedure will be developed using a matrix or matrices so that each configuration may be easily compared with all other configurations under consideration. The procedure will have the capability of analyzing configurations while varying the values or weights used in the evaluation.

The final step in this task will be the selection of one or more project configurations that appear may be feasible. Selection, based on recommendations of the Technical Committee, will be made by the Colorado Water Conservation Board.

8a. Develop a methodology for the evaluation of configurations to describe the process and the evaluation factors to be used. Some suggested evaluation factors are:

Project yield and reliability including the potential benefits and yield of reusing water to extinction in the Arkansas and South Platte basins,

Ability to deliver projected water supply demands,

Permitting considerations,

Public and political acceptability,

Coordination with local and regional planning efforts,

Capacity to comply with Federal water rights issues, and other legal and compact constraints,

Impacts on the natural environment, the man-made environment and the existing social setting,

Water quality implications ,

Operational flexibility,

Estimated costs for planning studies, legal activities, environmental mitigation and enhancement, permitting, design, construction and project operation and management,

Economic feasibility defined as all costs and all benefits resulting from a particular action regardless of to whom they may accrue,

Financial feasibility defined as the ability of sponsoring entities to finance and pay all costs associated with the project or action, and

The degree of uncertainty associated with each configuration.

8b. Conduct a "fatal flaw" analysis as a first step in the screening process.

8c. Conduct a second and, if necessary, a third screening process to narrow the range of configurations.

8d. With input from the Technical Committee, the CWCB staff, and the DNR staff, the CWCB will select one or more preferred configurations or recommend the project as not feasible.

Task 9 – Documentation and Justification of Selected Configurations

Justify the selection of the preferred project configurations as it compares to other major water development alternatives. Document the advantages and disadvantages of the preferred configurations over the other major water development alternatives with regard to incremental cost differences and benefits.

9a. Compare the costs and benefits of the preferred project configuration to other major water development alternatives.

9b. Document all input used in the analysis of the alternatives.

Task 10 – Project Development Strategies

Determine project development strategies for the implementation of the preferred configurations. The strategies will include identification of and input from prospective project users, measures that could be taken on a local, regional or state-wide basis such as new or revised institutional arrangements, statutory revisions, policy changes of various agencies or organizations, and new or revised water project funding methods. Tradeoffs and uncertainties involved in each strategy will be described and compared.

The Technical Committee and the CWCB will review the project development alternatives. Included in this task will be recommendations for any further analyses or studies that may be needed to provide more detailed information on particular actions or projects.

10a. Formulate project development strategies for implementation of the preferred configurations including input from prospective project users.

10b. Identify tradeoffs and uncertainties involved in each strategy.

10c. Review project development strategies with the Technical Committee and the CWCB.

10d. Recommend any further analyses or studies that may be needed.

10e. Prepare study conclusions.

Task 11 – Study Documentation

The work done in each of the above study tasks will be fully documented in task memoranda, in a final study report or reports.

11a. Prepare a task memorandum at the completion of each major work task to briefly summarize the work completed.

11b. Prepare a final report to describe the study process, data review, analyses completed, the decision-making process used and conclusions or recommendations resulting from the study.